CS3425 Lab 1.5 – Advanced MySQL

Fall 2023 (50 points)

Report:

Please keep all SQL statements in one file. You run individual SQL statement as you work on the problems. After you finish all the questions, please include the following two things in your report

1. All of the SQL statements

2. The text output from execute " query->execute all to text"

1. Data Prep. Create the following tables and insert the sample data.

stu(id, name, total_credit)
course(c_id, dept,credit)
takes(id, c_id, grade)

stu:
S1, Alice
S2, Jon
S3, Mike

course:
CS1121, CS, 3
CS3425, CS, 4
MA3425, Math, 4

takes :
S1, CS3425, A
S1, CS1121, A
S2, CS1121, A
S2, CS3425, null

2. List the students who haven't registered any classes yet.

   a. Write down the expected output for the sample data.

   b. Use subquery in where clause
      Hint: … and id not in (select …)

   c. Use outer join

Hint: select … from … natural left join … where … is null

3. List student id, name and how many classes each student registered.
    a. Write down the expected output for the sample data.

    b. Use scalar subquery with tuple variable in select clause.
        Hint: select … (select count(*) from …) from …

    c. Use outer join
        Hint: select … count(???) from ... natural left join … group by …

    d. Use union of two select statement:
        i. students who have registered for classes.
        ii. students who have not registered for an classes.
        Hint: (select … from …) union (select …, 0 from …)

4. List the student id, name and total_credits that they have earned.
    a. Write down the expected output for the sample data.

    b. Use scalar subquery
        Hint: select …, (select ….) from …

    c. Use outer join
        Hint: select … ifnull(…, 0)
        from (stu left join takes) left join course
        group by …

5. Update the total_credit column with the credit that student earned
    Hint:
    update ..
    Set … = (select …)